Amendment to the Claims

This listing of Claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Currently Amended) A thin-film magnetic head comprising:

a lower core layer formed so as to extend in a height direction from a surface opposing a recording medium;

a magnetic layer connected to the lower core layer directly or indirectly at a position spaced from an opposing surface in the height direction by a predetermined distance; and

a coil layer toroidally winding around the magnetic layer; and

a raised layer provided on the lower core layer at a position spaced in a track width direction from a center of the lower core layer in a track width direction,

wherein the toroidal coil layer is connected to a plurality of first coil pieces formed between the lower core layer and the magnetic layer and a plurality of second coil pieces formed on the magnetic layer,

wherein upper surfaces of the first coil pieces are covered with an insulating layer other than connection surfaces to the second coil pieces, the connection surfaces of the first coil pieces being raised upward and exposed from an upper surface of the insulating layer so that the second coil pieces are formed in contact with the connection surfaces of the first coil pieces,

wherein part of the first coil pieces is mounted on the raised layer, part of the upper surfaces of the first coil pieces mounted on the raised layer are exposed from the upper surface of the insulating layer, so that the exposed surface becomes the connection surface, and

wherein the upper surface of the lower ~~magnetic~~ core layer is formed as a flat surface over a region opposing the first coil pieces between a pair of the raised layers and formed below both sides of the first coil pieces.

2. (Canceled)

3. (Currently Amended) A head according to ~~Claim 2~~ Claim 1, wherein an upper surface of the raised layer is a flattening surface, and at least part of the first coil pieces mounted on the flattening surface becomes the ~~connecting~~ connection surface.

4. (Currently Amended) A head according to Claim 3, wherein ends of the first coil pieces are ~~formed partway~~ mounted on the flattening surface.

5. (Currently Amended) A head according to Claim 1, wherein an upper surface of the raised layer is a curved surface, and part of the first coil pieces mounted on the curved surface becomes the ~~connecting~~ connection surface.

6. (Original) A head according to Claim 5, wherein the first coil pieces are formed partway the curved surface.

7. (Original) A head according to Claim 1, wherein the upper surface of the insulating layer and the connection surfaces of the first coil pieces are an identical flattening surface.

8. (Previously Presented) A head according to Claim 1, wherein the raised layer intersects with a plurality of lower surfaces of the first coil pieces.

9. (Previously Presented) A head according to Claim 1, wherein the raised layer is arranged under each of the first coil pieces.

10. (Previously Presented) A head according to Claim 1, wherein on the lower core layer, a lower magnetic polar layer, a gap layer, and an upper magnetic polar layer, which is the magnetic layer, are deposited in that order from beneath so as to form a deposited structure, and a track width Tw is determined by a width of the deposited structure on the opposing surface in a track width direction.

11. (Original) A head according to Claim 1, wherein on the lower core layer, at least a lower magnetic polar layer, a gap layer formed of a non-magnetic metallic material, and an upper magnetic polar layer are plated in that order from beneath so as to form a magnetic-polar tip layer with a track width Tw defined by a width of an end face adjacent to an opposing surface to a recording medium in a track width direction, and on the magnetic-polar tip layer, the magnetic layer is deposited.

12. (Previously Presented) A head according to Claim 11, wherein a saturated magnetic induction density of the magnetic layer is lower than that of the upper magnetic polar layer.

13. (Previously Presented) A head according to Claim 1, wherein a length of the second coil pieces in a first direction perpendicular to a flowing direction of an electric current is larger than that of the first coil pieces in the first direction.

14. (Previously Presented) A head according to Claim 1, wherein a film thickness of the second coil pieces is larger than that of the first coil pieces.

15 – 23 (Canceled).

24. (Previously Presented) A thin-film magnetic head comprising:

a lower core layer formed so as to extend in a height direction from a surface opposing a recording medium;

a magnetic layer connected to the lower core layer directly or indirectly at a position spaced from an opposing surface in the height direction by a predetermined distance; and

a coil layer toroidally winding around the magnetic layer; and

a raised layer provided on the lower core layer at a position spaced in a track width direction from a center of the lower core layer in a track width direction,

wherein the toroidal coil layer is connected to a plurality of first coil pieces formed between the lower core layer and the magnetic layer and a plurality of second coil pieces formed on the magnetic layer,

wherein upper surfaces of the first coil pieces are covered with an insulating layer other than connection surfaces to the second coil pieces, the connection surfaces of the first coil pieces being raised upward and exposed from an upper surface of the insulating layer so that the second coil pieces are formed in contact with the connection surfaces of the first coil pieces, and

wherein the connection surfaces of the first coil pieces being disposed at or below a lower surface of the magnetic layer.

25. (Currently Amended) A head according to Claim 24, wherein part of the first coil pieces is mounted on the raised layer, part of the upper surfaces of the first coil pieces being exposed from the upper surface of the insulating layer at a position on that the first coil pieces mount, so that the exposed surface becomes the connection surface~~,~~ ~~and~~.

26. (Previously Presented) A head according to Claim 24, wherein the raised layer intersects with a plurality of lower surfaces of the first coil pieces.

27. (Currently Amended) A head according to Claim 24, wherein an upper surface of the raised layer is a curved surface, and part of the first coil pieces mounted on the curved surface becomes the ~~connecting~~ connection surface.

28. (Currently Amended) A thin-film magnetic head comprising:

a lower core layer formed so as to extend in a height direction from a surface opposing a recording medium;

a magnetic layer connected to the lower core layer directly or indirectly at a position spaced from an opposing surface in the height direction by a predetermined distance; and

a coil layer toroidally winding around the magnetic layer, wherein the toroidal coil layer is connected to a plurality of first coil pieces formed between the lower core layer and the magnetic layer and a plurality of second coil pieces formed on the magnetic layer,

wherein upper surfaces of the first coil pieces are covered with an insulating layer other than connection surfaces to the second coil pieces, the connection surfaces of the first coil pieces being raised upward and exposed from an upper surface of the insulating layer so that the second coil pieces are formed in contact with the connection surfaces of the first coil pieces, and

wherein an upper surface of ~~the~~ a raised layer is a curved surface, and part of the first coil pieces mounted on the curved surface becomes the ~~connecting~~ connection surface.

29. (Currently Amended) A head according to Claim 28, further comprising ~~a~~ the raised layer provided on the lower core layer at a position spaced in a track width

direction from a center of the lower core layer in a track width direction, wherein part of the first coil pieces is mounted on the raised layer, part of the upper surfaces of the first coil pieces being exposed from the upper surface of the insulating layer at a position on that the first coil pieces mount, so that the exposed surface becomes the connection surface.

30. (Previously Presented) A head according to Claim 28, wherein the upper surface of the insulating layer and the connection surfaces of the first coil pieces are an identical flattening surface.

31. (Previously Presented) A head according to Claim 28, wherein the raised layer intersects with a plurality of lower surfaces of the first coil pieces.

32. (Previously Presented) A head according to Claim 28, wherein the raised layer is arranged under each of the first coil pieces.